

# VERSATILE AS A SWISS ARMY KNIFE

Hasselblad’s new superstar lens isn’t even a real lens: The HTS 1.5 adapter makes it possible for five HC/HCD lenses to tilt and shift. Plus: a new universal zoom lens, the HCD 4-5.6/35-90 Aspherical now rounds off the already sizable palette of H lenses.

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What use is the best camera without the best lens? Of course, the lens alone won’t create an image – the digital age shows us the importance of sensor technology – but it does still provide the foundation for the camera and software to build upon. The extensive range of Hasselblad HC/HCD lenses covers the professional photographer’s every need with nine fixed focal lengths lenses ranging from a 28 mm super wide-angle to a 300 mm telephoto lens, two universal zoom lenses; the new tilt and shift adapter; one telephoto converter; extension tubes and impressive accessories. The result is a complete lens gamut teeming with solutions for all requirements.

## TILT AND SHIFT

Hasselblad’s new lens champion, the HTS 1.5 is a tilt and shift adapter that represents a real feat of cutting-edge engineering. H photographers have always longed for a tilt and shift solution that would tilt the focal plane and shift the lens’s optical axis to correct convergent lines. The idea to develop a universal adapter for existing HC/HCD lenses, however, was a true stroke of genius and one that Hasselblad has patented: The converter transforms five different lenses into a bona fide tilt and shift. It can be mounted with the HCD 4/28, HC 3.5/35, HC 3.5/50, HC 2.8/80 and HC 2.2/100 and is also compatible with Hasselblad’s extension tubes.

The concept is as simple as it is ingenious as the HTS 1.5 is also a telephoto converter, extending the focal length of a mounted lens by a factor of 1.5. The lens’s image circle is enlarged by that same denominator

and that creates a big enough margin for tilting and shifting, while also preserving the character of the lens. Mounted on the HTS 1.5, the HCD 4/28 remains a genuine wide-angle lens with a 71-degree diagonal and corresponds to a 6.3/45. The shift covers up to 18 mm and the tilt up to 10 degrees. Maximum rotation to either left or right measures 90 degrees and allows for almost any form of correction. The adjustment ranges are extensive and allow you to shift by 18 mm up or down and tilt by  $\pm 10$  degrees.

Hasselblad has invested a tremendous amount of technological know-how into the development of the HTS 1.5. Every adjustment made

## SYNOPSIS

- Hasselblads HC/HCD lenses cover a wide range of focal lengths between 28 and 300 mm and deliver excellent image quality – and so does the new family member, the HCD 4-5.6/35-90 Aspherical, a very universal and compact wide-angle zoom.
- The new HTS 1.5 tilt and shift adapter transforms five HC/HCD lenses into real tilt and shift lenses without making compromises in image quality.
- All HC/HCD lenses are optimized for all ranges and thanks to DAC they show extreme sharpness and no vignetting or distortion on H3DII cameras.
- Numerous accessories – extension rings, a tele converter and the CF-adapter increase the potential of the lens program.

to the adapter – tilt, shift and rotation – is registered by sensors and saved in the image meta data. Every aberration that arises from the optical system as a whole is corrected in the computer software thanks to Hasselblad’s Digital Auto Correction (DAC). The photographer can indulge in the HTS 1.5’s wealth of options without having to fear the loss of image quality.

What was formerly limited to owners of view cameras with narrow depth-of-field values is now available to Hasselblad cameras with their extra-large sensors and outstanding HC/HCD lenses. What’s more – and this is the key difference – the DAC function guarantees outstanding images that are completely error-free and provides for all the photographic freedoms you could possibly imagine. There is no limit to your creativity: Correct convergent lines in architecture, shift the focal plane in portraiture or adjust the focus and blur on a three-dimensional plane. The HTS 1.5 shines with technical perfection and it will inspire spontaneity and push you to break the rules for interesting effects. It will be available from January 2009. VICTOR’s next issue will take a closer look.

## HCD 4-5.6/35-90 ASPHERICAL

The second innovation in the HC/HCD range – the new HCD 4-5.6/35-90 Aspherical – is a zoom lens that sets its engineers some very special challenges. Zoom lenses can’t afford any weakness, especially when it comes to high-quality cameras like the H3DII. On the contrary, they are expected to substitute for their fixed-length counterparts without additional constraints. To achieve this, the HCD 4-5.6/35-90 Aspherical

took its makers through uncharted territory. It’s the first HC/HCD lens ever to employ glass elements with aspherical surfaces. Aspherical surfaces are known to provide the lens designer with more options, usually resulting in more compact designs with fewer elements. However, it was only until recently that aspherical lenses could be made to the required sizes. Compared with the HC 3.5-4.6/50-110, the new zoom lens offers more wide-angle while being thinner and about one third lighter.

It is the second HCD lens after the HCD 4/28. The ‘D’ alludes to optimization for H3D digital cameras while simultaneously signifying incompatibility with film cameras. To achieve compactness, the lens’s light projection was adapted to the ‘48 mm full format’ sensor of the H3DII-39 and -50. At the wide-angle setting in particular, designers balanced improvements in lens performance against a slightly greater distortion and vignetting as these can be eliminated without quality concessions with the aid of DAC. The outcome is a powerful tool that zooms between an extreme 83-degree wide-angle and just beyond the fringes of the normal lens. Because it is optimized for digital use it remains nice and compact and relatively light in weight.

## COMMON ASPECTS

All HC/HCD lenses are tailored to deliver the highest image quality and fulfill even the most exacting demands in film and digital photography. They not only compete with Hasselblad’s legendary CF lenses for the V series, they beat them. It was of utmost importance to Hasselblad that the HC/HCD lenses deliver highest performance not only at infinity but also at close range, where they are most frequently used.

The patented central shutter mechanism inherent in HC/HCD lenses operates to extreme precision. The fastest shutter speed of 1/800 second is on point and well within the accepted ISO specifications. Thanks to 100 percent electronic control, the

**The ingenious HTS 1.5 tilt and shift adapter enables you to tilt by  $\pm 10$  degrees or shift by  $\pm 18$  mm. You decide whether you want to be well-behaved and use it for perspective corrections or break the rules and place the focal plane in unexpected positions**

**The new HTS 1.5 tilt and shift adapter transforms five HC/HCD lenses into real tilt and shift lenses, maintaining their exceptional optical performance and broadening the creative freedom for the photographer**



## TECHNOLOGY LENSES



**HCD 4/28:** The 28 mm super wide-angle lens is only designed for digital H cameras and boasts a spectacular 95 degree angle of view mounted on an H3DII-39 or -50, and a sizable 89 degree angle on the H3DII-31. Its close up performance is outstanding – the subject can be as close as 10 cm from the front lens



**HC 3.5/35:** The HC 3,5/35 mm lens is still considered super wide-angle. Mounted on the H2F it reaches an 89 degree angle of view; in conjunction with the 48 mm full format it covers 82 degrees. It's a powerful lens for creative photography that is also easy to use



**HC 3.5/50:** The 50 mm lens for H3DII users represents the equivalent of a 35 mm universal lens in 35 mm photography. It's a wide angle that offers ample perspective without seeming unnatural, making it the classic lens in reportage photography. The universal HC 3.5/50 makes a stand with high performance values



**HC 2.8/80 :** The term 'normal lens' sounds a little derogatory in the context of high-class lenses. But the HC 2,8/80 is not only the most affordable but also one of the best HCs in the market. It's a high-speed lens that sports a luminous viewfinder image along with the ideal conditions for low light photography. The 2.8/80 is also exceptionally compact, making it an excellent choice for light-weight photography outdoors



**HC 2,2/100:** The compact 100 mm is the fastest HC lens of all, ideal for action photography and low light photography outside the studio. Its slight telephoto effect and extremely low depth of field makes it ideal in portraiture



**CF lens adapter:** The CF adapter allows all lenses from the V system to be used on H system camera bodies and correctly uses the central lens shutter of the V lens



True Exposure feature of the H cameras will automatically correct any deviations from the actual shutter speed when the lens is set to small aperture values. All shutter speeds are compatible with flash systems and grant the photographer total control over the lighting, enabling him to capture fast action without distortion and suppress ambient light to his specifications.

### DIGITAL AUTO CORRECTION

All HC/HCD lenses are designed to generate the highest optical quality even on film. Aberrations, which the DAC function is designed to eliminate, are so minuscule they only become visible with the extreme resolution of H3DII cameras. What's

**HCD 4-5.6/35-90:** The all new HCD 4-5.6/35-90 adds a gorgeous wide-angle zoom to the line of HC/HCD lenses. With its 82 degrees angle of view on the wide end and a mild telephoto effect on the other, it's as universal as a Swiss army knife. Thanks to its compact size and moderate weight, it's the perfect outdoor companion for the H3DII

more, the Phocus software permits you to activate and deactivate the automatic controls for vignetting, distortion and chromatic aberrations. When you check the extent of the corrections you discover just how nominal they are – and yet they represent that final polish.

Whenever highest quality is the highest priority, lens builders are forced to compromise the design in some form or other. With strong wide-angles, for example, a complete omission of distortion would entail a huge front lens that no company would be able to produce and no photographer would want to transport – not to mention pay for. The total exclusion of chromatic aberrations at all ranges, aperture settings and focal lengths is simply out of the question. Only tiny aberrations can be corrected digitally without thwarting the quality of the reproduction. Digital corrections will never transform a mediocre lens into a good lens. It can however, turn a great lens into a perfect lens. DAC is extremely valuable when used with the new HTS 1.5 adapter since now you can really shift into the outer corners of the HC/HCD lenses and push them unto limit. The H3DII is founded on a concept of integration: It's what

allows for DAC in the first place and represents just another branch in Hasselblad's drive to perfection. DAC is what enables all HC/HCD lenses to generate virtually perfect results throughout all aperture settings, ranges and focal lengths, and even in combination with extension tubes and converters.

Photographs are devoid of color fringes, crooked lines and blackened corners. Hasselblad is spending considerable resources to develop corrective algorithms based on lens design and apply them universally to all lenses, independent of possible fluctuations in manufacture. This can only be done because the tight manufacturing process of the lenses guarantees few deviations from the ideal values. Unlike other professional camera manufacturers, Hasselblad takes into account the availability of DAC at the design stage of HC/HCD lenses. The HCD 4/28, for example, allowed for distortion values that are slightly above average and yet easily



**HC 4/120:** The HC 4/120 is a classic macro lens that reaches a 1:1 reproduction scale without adding extension tubes. Its optical excellence and its versatility gives it an almost legendary standing amongst H photographers. It is a classic portrait focal length that can be used for far more than just close-up photography



**HC 3,2/150:** Thanks to high speed and moderate telephoto effect the HC 3,2/150 is a fine choice in classic portraiture – and a prime choice in landscape photography



**HC 4/210:** The counterpart to the classic 135 mm lens in 35 mm photography comes in the form of the HC 4/210 – a classic telephoto lens with outstanding performance statistics. The 210 mm is effective in both portraiture and landscape photography, generating that slightly compacted, typical telephoto perspective



**HC 4,5/300:** The ‘longest’ telephoto lens in the H series is ideal for wildlife and sports photography, where it draws even the shiest of mammals and energetic of actions up close. Mounted in conjunction with the H1.7X converter the lens mutates into a beastly 500 mm of exceptional quality



**HC 3,5-4,5/50-110:** Zoom lenses are easy to use and practical, enabling you to quickly respond to changing conditions. The HC 3,5-4,5/50-110 covers an invaluable photographic spectrum ranging from slight wide angle to portrait telephoto. As a zoom it has no problem keeping up with the speed and reproduction values of fixed focal lengths. Its versatility is what makes it one of the most popular HC lenses of all



correctable. Chromatic aberration, in turn, is prevented almost entirely. To design a ‘digital’ lens with similar performance statistics – but without DAC – would require tremendous effort. Thanks to DAC, however, the new super wide-angle remains small and compact and, not least, more affordable. Similarly for the HTS 1.5 tilt and shift adapter that without DAC wouldn’t permit all combinations to be adjusted for without errors. In other words, DAC is essential to the production of innovative products such as the HTS 1.5 or the HCD 4/28. The best thing about DAC is its transparency: the photographer has only to press the exposure button and convert the photo in Phocus to remove all aberrations automatically. In theory, with the right amount of craftsmanship and willingness to experiment you could limit errors like vignetting, and even distortion, using Photoshop. But Phocus with DAC delivers the optimal solution automatically.

SPECIALITIES

The H3DII-31’s slightly smaller sensor yields a 1.2 crop factor. That’s not enough to really change the character of a lens and rarely poses a problem

**HE extension rings:** Available with 13, 26 and 52 millimeters, the HE extension rings allow macro photography with all HC/HCD lenses

in practice. The table on the right displays the HC/HCD lenses alongside with their 35 mm counterparts. In addition to the HC/HCD lenses on these pages, Hasselblad’s lens gamut holds several other specialties in stock, such as the CF adapter for compatibility with the legendary Zeiss lenses of the V system. The H camera’s autofocus mechanism allows for sublime focus control and the camera’s exposure meter displays the speed and aperture to be transferred to the lens. In the case of CFE lenses, the aperture setting is transferred to the camera. The CF lens adapter greatly expands the range of compatible lenses for H3DII users; take the 500 mm CF lens, for example, which currently lacks an equal in the H system. CF lens users may not call upon DAC yet, but it doesn’t stop these renowned lenses from living up to their outstanding reputation when mounted on the H3DII. The offering is made complete with the Converter H1.7X. It largely

**Converter H1.7X:** The converter can freely be combined with all HC/HCD lenses except the wide angles and zooms, vastly increasing their range of use

extends the range of HC/HCD lenses at the telephoto end with the exception of the wide-angle and zoom lenses. For close-ups there are the HE extension rings with 13, 26 and 52 mm lengths. Depending on the lens, the extension tubes and converters can be combined with each other, and, apart from a few exceptions, the AF function remains operational. Since the converters and extension tubes are fully integrated in DAC they can be used without restriction. The HC/HCD’s outstanding performance statistics will be preserved from close range to extended telephoto.

CONCLUSION

The palette of HC/HCD lenses could have be considered complete since the introduction of the HCD 4/28. Now, however, the HTS 1.5 tilt and shift adapter and the new HCD 4-5.6/35-90 Aspherical expand the range even further. The HTS 1.5 now spares Hasselblad users from having

H SYSTEM VS. 35 MM LENSES

	Diag. angle of view H3DII-39 and -50 (35 mm focal length)	Diag. angle of view H3DII-31 (35 mm focal length)	Diag. angle of view H2F w. 645-film (35 mm focal length)
HCD 4/28	93° (20 mm)	87° (23 mm)	–
HC 3.5/35	81° (25 mm)	75° (28 mm)	87° (23 mm)
HC 3.5/50	63° (35 mm)	58° (39 mm)	68° (32 mm)
HC 2.8/80	41° (58 mm)	37° (64 mm)	45° (52 mm)
HC 2.2/100	34° (71 mm)	31° (78 mm)	38° (64 mm)
HC 4/120	29° (84 mm)	26° (93 mm)	32° (75 mm)
HC 3.2/150	23° (106 mm)	21° (118 mm)	26° (95 mm)
HC 4/210	17° (149 mm)	15° (165 mm)	18° (134 mm)
HC 4.5/300	12° (206 mm)	11° (229 mm)	13° (186 mm)
HCD 4-5.6/35-90	81–39° (26–61 mm)	75–35° (26–68 mm)	–
HC 3.5-4.5/50-110	62–32° (36–76 mm)	56–29° (40–85 mm)	67–35° (33–69 mm)

to resurrect their old view cameras or perhaps even setting for lower-quality solutions from the 35 mm market. The temptation of being able to use the outstanding HC/HCD lenses with tilt and shift functionality, fused with cameras with impressively large image sensors, is beyond seductive. The new zoom, in turn, is as universal as a Swiss army knife and may cover all your photographic needs all by itself. Hasselblad covers with the HC/HCD lenses a very broad range from super wide-angle to super telephoto, from ‘light giant’

to macro and from universal zoom to a specialized tilt and shift solution. There’s bound to be the right lens for everyone. And the strength of the system isn’t only in its vast portfolio and complete coverage of needs; it’s the reliability with which HC/HCD lenses are known to deliver high performance across the board. And this is what counts: tools that always work, never abandon you and always make the most of your possibilities. For further information please visit [www.hasselblad.com](http://www.hasselblad.com)